



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,024	01/15/2004	Craig H. Barratt	ATH-0116	8508
30547	7590	07/25/2007	EXAMINER	
BEVER HOFFMAN & HARMS, LLP			WU, CHENG CHIEN	
2099 GATEWAY PLACE			ART UNIT	PAPER NUMBER
SUITE 320			2609	
SAN JOSE, CA 95110				
MAIL DATE		DELIVERY MODE		
07/25/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/760,024	BARRATT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	CHENG-CHIEN WU	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 January 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 39-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 39-67 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 January 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All      b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/31/2005</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

1. Claims 1-38 of U.S. Application 10/759974 were filed 1/15/2004. Applicant cancelled claims 1-38 in preliminary amendment on 6/20/2005 and added claims 39- 67 for examination.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 39-42, 48, 49, 52, 58, 59, 62 and 63** are rejected under 35 U.S.C 102(e) as being anticipated by **Jayaraman et al.** (US Patent #6963549 B1).

**As per claim 39, Jayaraman et al.** clearly discloses that a method of minimizing collisions in a CSMA/CA wireless data communication system using an access point, the method comprising:

sensing the presence of a client desirous of communication with the access point  
(See Fig. 1, a local station 20 may request (block 61 of FIG. 2) that a particular

bandwidth be reserved for a given traffic type over a defined period of time, column 2, lines 66-67 to column 3, line 1);

allocating a start time slot list having at least one unique start time slot during which the client may begin transmitting (The central authority is used to selectively reserve the time slot based on at least in part a reservation schedule, column 1, lines 60-62);

transmitting the start time slot list to the client (indicates the reserved time slot in the frame that is transmitted (block 78) to the requesting station, column 3, lines 11-16); and

receiving a transmission from the client, the transmission beginning only during the start time slot(s) indicated by the start time slot list (If the central authority reserves the time slot, then during the time slot, the central authority prevents the other local stations from transmitting, column 1, lines 62-64).

**As per claim 40, Jayaraman et al.** clearly shows and discloses the claimed invention **as applied to claim 39 above**, and in addition, **Jayaraman et al.** further teaches wherein allocating includes allocating a first start time slot list for the client (See Fig. 4, a particular local station 20 may have time slots 160 in that are denoted by "STA1", column 4, lines 29-30) and allocating a second start time slot list for itself (See Fig. 4, time slot 162, a time slot in which the local stations 20 that do not have reserved periods may transmit using the CSMA/CA contention protocol, column 4, lines 34-36)

each start time slot list including a subset (See Fig. 4) of available transmit start time slots during which the client and the access point may begin to transmit.

**As per claim 41, Jayaraman et al.** clearly shows and discloses the claimed invention **as applied to claim 39 above**, and in addition, **Jayaraman et al.** further teaches wherein allocating includes allocating a first start time slot list for a first client (See Fig. 4, "STA1", column 4, lines 29-30) and allocating a second start time slot list for a second client (See Fig. 4, another station 20 may have time slots 160 (in the reservation vector 150) that are denoted by "STA2", column 4, 30-32), each start time slot list including a subset (See. Fig. 4) of the available transmit start time slots during which the first and second clients may begin to transmit.

**As per claim 42, Jayaraman et al.** clearly shows and discloses the claimed invention **as applied to claim 39 above**, and in addition, **Jayaraman et al.** further teaches wherein allocating includes allocating a first start time slot list for the client (See Fig. 4, "STA1", column 4, lines 29-30) and allocating a second start time slot list for another device (See Fig. 4, "STA2", column 4, lines 30-32) wherein the first and second start time slot lists are disjoint (See Fig. 4, STA1 and STA2 are separated by time slot 162).

**As per claim 48, Jayaraman et al.** clearly shows and discloses the claimed invention **as applied to claim 39 above**, and in addition, **Jayaraman et al.** further

teaches wherein sensing comprises: receiving an association request from the client (column 2, lines 66-67 to column 3, line 1); and acknowledging the association request from the client (See Fig. 1, This reservation request is received and analyzed by the central authority 42, column 3, lines 1-3).

**As per claim 49, Jayaraman et al.** clearly shows and discloses the claimed invention as applied to claim 39 above, and in addition, **Jayaraman et al.** further teaches wherein allocating includes: measuring a traffic value for the client (depending upon the underlying network properties, desired traffic characteristics and the policy applicable to the requesting real time station, column 3, lines 3-5); and assigning the start time slots based on the traffic value (See Fig. 1 and Fig. 2, based on this determination, the central authority 42 communicates a frame to the requesting station 20 indicating either denial (block 76) or the grant (block 78) of the request, column 3, 5-10).

**As per claim 52, Jayaraman et al.** clearly shows and discloses the claimed invention as applied to claim 39 above, and in addition, **Jayaraman et al.** further teaches wherein allocating includes: receiving a priority value from the client (See Fig. 3, A field 106 of the RRF 100 indicates a priority of the traffic, column 3, 61-63 and column 4, lines 12-13); and assigning the allocated transmit time slots based on the priority value (See Fig. 3, upon reception of an RRF 100, the central authority 42 examines the parameters indicated by the RRF 100 and the central authority's reservation vector to determine if a time slot may be reserved, column 4, lines 22-25).

**Claim 58** lists all the same limitations of claim 39, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 39 applies equally as well to claim 58.

**Claim 59** lists all the same limitations of claim 49, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 49 applies equally as well to claim 59.

**Claim 62** lists all the same limitations of claim 52, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 52 applies equally as well to claim 62.

**Claim 63** lists all the same limitations of claim 39, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 52 applies equally as well to claim 62. (See Jayaraman et al, in Fig. 6 and column 5, lines 38-43).

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 43 and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jayaraman et al.** (US Patent #6963549 B1) in view of **Walter et al.** (Pub US2003/0115369 A1).

**As per claim 43, Jayaraman et al.** clearly shows and discloses the claimed invention as applied to claim 39 above, and in addition, **Jayaraman et al.** further teaches wherein allocating includes the start time slot list based on collision detection (For purposes of preventing a collision from occurring, the wireless LAN may use a carrier sense multiple access/collision avoidance (CSMA/CA) contention scheme, column 1, lines 25-36).

However, **Jayaraman et al.** does not teach to include expanding the start time slot list.

In the same field of endeavor, **Walter et al.** teaches to include expanding the start time slot list (In the middle of FIG. 9, a single frame 22 is expanded wherein a plurality of tick marks are illustrated to indicate the individual time slots, [0079], lines 6-7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jayaraman et al. with the teachings of Walter et al. in order to improve the synchronization of data transmission over the network because there are several contributors to timing jitter of data within an allocated time slot, which if left uncorrected, could cause synchronization failures.

**As per claim 45, Jayaraman et al.** shows and discloses the claimed invention as applied to **claim 39 above**, and in addition **Jayaraman et al.** further teaches wherein allocating includes the start time slot list based on either collision detection (column 1, lines 25-26) or sensed client count (See Fig. 1, This reservation request is received and analyzed by the central authority 42, column 2, lines 66-67 to column 3, line 2).

However, Jayaraman et al. does not teach to include expanding the start time slot list.

In the same field of endeavor, **Walter et al.** teaches to include expanding the start time slot list (In the middle of FIG. 9, a single frame 22 is expanded wherein a plurality of tick marks are illustrated to indicate the individual time slots, [0079], lines 6-7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jayaraman et al. with the teachings of Walter et al. in order to improve the synchronization of data transmission over the network because there are several contributors to timing jitter of data within an allocated time slot, which if left uncorrected, could cause synchronization failures.

7. **Claims 51, 54, 55, 60, 64, 65 and 67** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jayaraman et al.** (US Patent #6963549 B1) in view of **Elaoud et al.** (Pub US2004/0165562 A1).

**As per claim 51, Jayaraman et al.** clearly shows and discloses the claimed invention **as applied to claim 39 above**. However, Jayaraman et al. does not teach wherein allocating includes: determining a class of data for transmission; and assigning the start time slots based on a pool of start time slots associated with the class of data for transmission

In the same field of endeavor, **Elaoud et al.** teaches wherein allocating includes: determining a class of data for transmission ([0040], lines 23-24); and assigning the start time slots based on a pool of start time slots associated with the class of data for transmission ([0018], lines 9-11).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jayaraman et al. with the teachings of Elaoud et al. because it is capable of providing different levels of service based on users' and application's needs

**As per claim 54, Jayaraman et al.** shows and discloses the claimed invention as applied to **claim 39 above**. However, Jayaraman et al does not teach wherein the start time slot list includes a plurality of start time slots, the client selecting an entry from the start time slot list based on a randomizing function.

In the same field of endeavor, **Elaoud et al.** teaches wherein the start time slot list includes a plurality of start time slots, the client selecting an entry from the start time slot list based on a randomizing function (The channel is awarded randomly to a contending station, [0011], lines 1-5).

**As per claim 55, Jayaraman et al. and Elaoud et al.** show and disclose the claimed invention **as applied to claim 54 above**, and in addition **Elaoud et al.** further teaches wherein the selecting is based on a randomizing function with a substantially equal likelihood of selection for any element of the start time slot list (The channel is awarded randomly to a contending station with no regards to the QoS requirements of any of the contending stations, [0011], lines 4-7).

**As per claim 60, Jayaraman et al.** shows and discloses the claimed invention **as applied to claim 59 above**, and in addition **Jayaraman et al.** further teaches wherein the traffic value comprises: a priority value (See Fig. 3, A field 106 of the RRF 100 indicates a priority of the traffic, column 3, 61-63 and column 4, lines 12-13).

However, Jayaraman et al. does not teach traffic value comprises: one of class of data for transmission.

In the same field of endeavor, **Elaoud et al.** teaches wherein the traffic value comprises: one class of data for transmission ([0040], lines 23-24).

**Claim 64** lists all the same limitations of claim 54, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 54 applies equally as well to claim 64.

**Claim 65** lists all the same limitations of claim 55, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 55 applies equally as well to claim 65.

**As per claim 67, Jayaraman et al.** shows and discloses the claimed invention as applied to **claim 58 above**, and in addition **Jayaraman et al.** further teaches wherein a transmitter gate permitting a client transmitter to begin operation only during the time associated with the entry (column 1, lines 62-64).

However, **Jayaraman et al.** does not teach a start time slot selector for choosing an entry from the start time slot list based on a randomizing function.

In the same field of endeavor, **Elaoud et al.** teaches a start time slot selector for choosing an entry from the start time slot list based on a randomizing function ([0011], lines 1-5).

8. **Claim 44 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jayaraman et al.** (US Patent #6963549 B1) in view of **Walter et al.** (Pub US2003/0115369 A1) and in further view of **Christensen** (US Patent #5355375).

**As per claim 44, Jayaraman et al. and Walter et al.** show and disclose the claimed invention as applied to **claim 43 above**, and in addition **Jayaraman et al.**

Art Unit: 2609

further teaches wherein allocating includes allocating a first start time slot list for the client (See Fig. 4, "STA1", column 4, lines 29-30), allocating a second start time slot list for another device (See Fig. 4, "STA2", column 4, lines 30-32), each start time slot list including a subset of available transmit start time slots (See Fig. 4)

However, both Jayaraman et al. and Walter et al. do not teach to replicate at least one of the first start time slot list, the second start time slot list, and the available transmit start time slots.

In the same field of endeavor, **Christensen et al.** teaches to replicate at least one of the first start time slot list, the second start time slot list, and the available transmit start time slots (the polling version of the deterministic contention algorithm of the present invention effectively replicates a quasi time-slot polling process whereby each polled node is given a predefined time slot in which to transmit messages, column 3, lines 41-47).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jayaraman et al. and Walter et al. with the teachings of Christensen et al. because of the advantages of being able to selectively provide a deterministic access capability to an otherwise indeterminate without requiring modifications to the software or hardware of the users.

**As per claim 46, Jayaraman et al. and Walter et al. show and disclose the claimed invention as applied to claim 45 above, and in addition Walter et al. teaches wherein expanding includes the start time slot list ([0079], lines 6-7).**

However, both Jayaraman et al. and Walter et al. do not teach to replicate the start time slot list.

In the same field of endeavor, **Christensen et al.** teaches to replicate the start time slot list (column 3, lines 39-47).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jayaraman et al. and Walter et al. with the teachings of Christensen et al. because of the advantages of being able to selectively provide a deterministic access capability to an otherwise indeterminate without requiring modifications to the software or hardware of the users.

9. **Claims 50, 53 and 61** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jayaraman et al.** (US Patent #6963549 B1) and in view of **Iwamura** (US Paten #7206320 B2) and in further view of **JP 11261518**, hereinafter JP'518.

**As per claim 50, Jayaraman et al.** clearly shows and discloses the claimed invention **as applied to claim 39 above**. However, Jayaraman et al. does not teach wherein allocating includes: assigning at least one pair of a high-priority start time slot and a low-priority start time slot substantially equally displaced in time from a center start time slot.

In the same field of endeavor, **Iwamura et al.** teaches wherein allocating includes: assigning at least one pair of a high-priority start time slot and a low-priority start time slot (During arbitration for a time slot(s), transmissions having higher priority win out over transmissions of lower priority, column 11, lines 2-4).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention to combine the teaching of Jayaraman et al. with the teaching of Iwamura et al. because in order to achieve Quality of Service in communications in which signal delays or interruptions cannot be tolerated, it is required that the data communication should be isochronous, and packets related to such communications should be transmitted/retransmitted with higher priorities.

The combination of Jayarman et al. and Iwamura et al. as discussed above shows the limitations claimed, except they do not specifically disclose that substantially equally displaced in time from a center start time slot.

In the same field of endeavor, JP'518 teaches that substantially equally displaced in time from a center start time slot (See Fig. 1 and abstract, time slots for downlink circuits (12) of a TDMA frame (8) arranged in succession from the center of continuous time slots)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention to combine the teaching of Jayaraman et al. and Iwamura et al. with the teaching of JP'518 because it can ensures easy transmission of data and asymmetrical data in different data velocities.

**Claim 53** lists all the same limitations of claim 50. Therefore, the supporting rationale of the rejection to claim 50 applies equally as well to claim 53.

**Claim 61** lists all the same limitations of claim 50, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 50 applies equally as well to claim 50.

10. **Claim 47** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jayaraman et al.** (US Patent #6963549 B1) and **Walter et al.** (Pub US2003/0115369 A1) in view of **Christensen** (US Patent #5355375) and in further view of **Elaoud et al.** (Pub US2004/0165562 A1).

**As per claim 47, Jayaraman et al., Walter et al. and Christensen** show and disclose the claimed invention as applied to **claim 46 above**. **Wlater et al.** further teaches wherein expanding includes creating a larger start time slot list ([0079], lines 6-7).

However, Jayaraman et al., Walter et al. and Christensen do not teach to have proportionately larger pools of start time slots, each pool associated with a class of transmission.

In the same field of endeavor, **Elaoud et al.** teaches to have proportionately larger pools of start time slots (the time slot may be placed into a pool of best effort slots, page 4, [0040], lines 23-24), each pool associated with a class of transmission (Various classes of time slots are used to accomplish control and data transmission functions, page 2, [0018], lines 9-11).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jayaraman et al., Walter et al. and Christensen Walter et al. with the teachings of Elaoud et al. because it is capable of providing different levels of service based on users' and application's needs.

11. **Claim 56, 57 and 66** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jayaraman et al.** (US Patent #6963549 B1) and **Elaoud et al.** (Pub US2004/0165562 A1) in view of **Iwamura** (US Paten #7206320 B2) and in further view of **JP 11261518**, hereinafter JP'518.

**As per claim 56, Jayaraman et al. and Elaoud et al.** show and disclose the claimed invention **as applied to claim 54 above.**

However, Jayaraman et al. and Elaoud et al. do not teach wherein the start time slot list includes a high-priority time slot and a low-priority time slot substantially equally displaced in time from a center time slot.

In the same field of endeavor, **Iwamura et al.** teaches wherein the start time slot list includes a high-priority time slot and a low-priority time slot (column 11, lines 2-4).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention to combine the teaching of Jayaraman et al. and Elaoud et al. with the teaching of Iwamura et a. because in order to achieve Quality of Service in communications in which signal delays or interruptions cannot be tolerated, it is required

that the data communication should be isochronous, and packets related to such communications should be transmitted/retransmitted with higher priorities.

Furthermore, Jayaraman et al., Elaoud et al., and Iwamura et al. teach all of limitation as discussed above, except for equally displaced in time from a center time slot.

In the same field of endeavor, JP'508 teaches equally displaced in time from a center time slot (See Fig. 1 and abstract).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention to combine all the teaching as discussed above with the teaching of JP'508 because it can ensure easy transmission of data and asymmetrical data in different data velocities.

**As per claim 57, Jayaraman et al., Elaoud et al., and Iwamura et al.** show and disclose the claimed invention as applied to **claim 56 above**. Iwamura et al. further teach wherein the selecting includes selecting between the high-priority start time slot and the low-priority start time slot (column 11, lines 2-4). Furthermore, Elaoud et al. teach selecting the start time slot based on a randomizing function ([0011], lines 1-5).

**Claim 66** lists all the same limitations of claim 56, but in apparatus form rather than method form. Therefore, the supporting rationale of the rejection to claim 56 applies equally as well to claim 66.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Odman (Pub #US20030137993 A1) discloses Method of managing time slots in a wireless network through the use of contention groups.

Haartsen (Pub #US 2002/0167961 A1) discloses Dynamic bandwidth allocation in ad hoc wireless picnets.

Kasami et al. (Pub #US 2002/0181492 A1) discloses Wireless communication apparatus.

Yew et al. (Pub #US2003/0108059 A1) discloses Methods for ensuring medium access in a wireless network.

Ginzburg et al. (Pub #US2005/0122989 A1) discloses Method and apparatus to estimate collision rate parameter.

Ginzburg et al. (Pub #US2004/0264423 A1) discloses Method and apparatus to provide channel access parameter.

Ginzburg et al. (Pub #US2005/0064817 A1) discloses Device, system and method for adaptation of collision avoidance mechanism for wireless network.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHENG-CHIEN WU whose telephone number is (571)

270-1217. The examiner can normally be reached on Monday-Friday 8:00-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHARLES GARBER can be reached on (571) 272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cheng-Chien Wu  
Patent Examiner  
July 20, 2007

A handwritten signature in black ink, appearing to read "Cheng-Chien Wu".